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AUTHOR Blau, Harold; Loveless, Eugene
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ABSTRACT

An intervention strategy is described which uses stimulants and other medication for a group of high risk, acting out, learning disabled children, and shows that such treatment can prevent delinquency. The nature of learning disabilities and brain dysfunction is discussed. The use of behavior modification and medication is described. The results of a retrospective study derived largely from the student records of one small, private, urban school are presented when treated by medication under psychiatric control, the students as a group seemed to derive greater benefit from the educational program, and there were no delinquencies on-site. (Author)

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MEDICATION, PREDELINQUENCY, AND DELINQUENCY

An Eight Year Study

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Harold Blau, Ph.D.,
Director of the Hollis-Hilltop School (formerly The Linden School), New York

and

Eugene Loveless, Ph.D.
Staff Psychologist, St. Vincent's Hall, New York, Supervisor Special School

Presented at the 1978 International Conference of the Association for Children With Learning Disabilities, March 1 - 4, 1978, Kansas City, Missouri

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MEDICATION, PREDELIQUENCY AND DELINQUENCY
An Eight Year Study

The most appropriate introduction to this topic is the recent report by the GAO (General Accounting Office) to Congress, on learning disabilities and their link with delinquency. Indications are that this link has yet to be determined. It goes on to suggest that if a "positive relationship" were established, it "Could significantly affect the strategy of the Government in addressing the problems of juvenile delinquency."[7] It is the purpose of this report to describe one such strategy, namely that stimulants and other medication are appropriate treatment for a group of high risk, acting out, learning disabled children, and that such treatment can prevent delinquency.

However, several complex relationships must be explored briefly beforehand. One is an acceptable definition of learning disabilities. The most familiar one is from the 1970 Act of Congress:

> ...a disorder in one or more of the basic psychological processes involved in understanding or in using language,...which...may manifest itself in imperfect ability to listen, speak, read, write, spell or do mathematical computations. Such disorders include such conditions as perceptual handicaps, brain injury, minimal brain disfunction,...(but) does not include children who have learning problems which are primarily the result of visual, hearing or motor handicaps, of mental retardation, of emotional disturbance, or of environmental disadvantage.[5]

Included within this definition are the categories of "brain injury" and "minimal brain dysfunction" for which stimulants and other medication may be prescribed to control not the cortical disorder, but the resulting hyperactivity, negativism, and aggressive behavior (as summarized by Blau[3]), or short attention span, inattentiveness, distractibility, restlessness, irritability, and explosiveness (Burks[4]), (Conners[6]). Also "poor conceptual abilities, defective memory, serious academic deficiencies, poor muscular coordination" (Burks[4]). It is not generally understood that embedded within the definition of learning disabilities are all of the foregoing.

It is the position of the authors that ascribing proper significance to the "learning disabilities" aspect or the "brain dysfunction" aspect can make the difference between correct and incorrect remediation in the present and the development of the individual towards deviant or non-deviant behavior in the future. It should not become a question of treating one or the other. The reality is that a child who cannot concentrate will not profit from even the most elaborate learning disabilities remedial program and vice versa that the treatment of cognitive deficits in a child with impaired concentration is only intermittently effective, if at all.

Unfortunately, the two aspects of disturbed behavior (including short attention span) and disturbed cognition (including processing functions) as cited in the GAO report, have become mutually indistinguishable.

The GAO report states as much:

> ...adolescents with significant learning disabilities also often have emotional problems. It was further recognized that severe emotional problems may cause specific learning difficulties similar to learning disabilities.[7]

This implies that either psychotherapy or medication could "cure" learning disabilities. An essential difference is the question of time. Our position is that if medication is appropriate, and the evidence suggests that it can be, it can make the child accessible to the adult for instructional purposes much more immediately.

At a meeting at Adelphi University in New York State, January 13, 1978, Larry B. Silver, M.D., Chief, Division of Child and Adolescent Psychiatry, at Rutgers University Medical School, stated that the hyperactive and/or distractible learning disabled child made up 40% of the entire group of learning disabled children, and that nearly all (90%) will respond to chemotherapy.

Another authority, H.B. Levy, Co-Medical Director of the Caddo Foundation for Exceptional Children and Associated Clinical Professor of Pediatrics, Louisiana State University, asserted that minimal brain dysfunction could be found in 20% of all school children with all the symptoms cited above and that a combination of remedial efforts combining education and medication tends to prevent the development of severe personality maladjustment, delinquent behavior, and emotional illness in later life.

While behavior modification has been cited as a viable alternative, the evidence in favor of this theory is not as convincing as that dealing with the various medications available for immediate control of symptoms of brain dysfunction. As a long range technique designed to build firm self-monitoring behavioral controls into individuals, it has unique and unimpeachable credits. Medication does not preclude the use of behavior modification programs, but there may be cases in which only one mode of treatment has advantages for a particular child.

The group which is the subject of this report encompasses all three factors: (1) learning disabilities, (2) brain dysfunction, and (3) emotional problems, as evidenced by the following profile which remained impressively stable over the entire eight year period of the study:

1. Male
2. Average Age 11.5, range seven to sixteen
3. Socio-economic status (SES)
   minority blue collar - 67%
   minority lower middle - 27%
   minority middle - 4%
   white middle - 2%
4. Fatherless homes - 73%
5. Other children in the family - 92%
6. Public assistance - 52%
7. Hyperactivity - 98%
8. Assaultive and/or defiant behavior - 96%
9. Excluded or proposed for exclusion from conventional classrooms - 91%
10. Deficiencies in all academic skills (two years or more below grade) - 95%

(Statistics represent approximations since they varied from year to year.)

We thus have what may be technically described as a learning disabled group. Their chief characteristic, however, is anti-social aggresive, impulsive behavior already in most cases demonstrated in the school environment resulting in actual or proposed exclusion as early as age seven. The profile blends in with other profiles predictive of delinquency.

The most recent profile on delinquency, for example, a publication of the National Conference of Christians and Jews, corresponds interestingly with our own profile. It includes, among others, such items as male, age 12 to 17, single parent, fatherless home, one or two years behind class in reading, frequently truant, surly and antagonistic.[17]

Another recent publication offers a kind of profile also with interesting parallels. To West and Farrington delinquents are:

> ...poorly adapted,...have less regard for the rights and feelings of peers...have poorer attitudes toward authority...(are) more easily distracted and...more aggressive.[21]

The last three are obviously reminiscent of the brain dysfunction syndrome. West and Farrington emphasize also the often-overlooked early conviction. They state that the earlier in life an offender is convicted, the greater the likelihood that he will go on committing crimes over a long period. What this makes us understand is that exclusion from school is really a first conviction, and requires appropriate immediate action if it is not to shape an entire life long before the formal court verdict is first rendered. School suspension, therefore, is more significant than is ordinarily suspected.

In conclusion, what emerges in rough outline is the suggestion that the possible link between learning disabilities and delinquency may be found in the symptoms associated with the term "minimal brain dysfunction" and which are more often summed up today as "neurologically impaired".

Research data is scanty. One of the earliest was by Berman[2]. Reporting to the ACLD Conference in 1974, he described his investigation of delinquents over a four year period and concluded that 58% of a randomly selected group had "disturbances which are associated with various types of neurological dysfunction." He lists the following among others as "disturbed" areas: faulty kinesthetic feedback, auditory discrimination disorder, dyslexia, etc. No anti-social behavior is indicated except that elsewhere in the report he refers to evidence of a "hidden brain disorder... responsible for a dyscontrol syndrome resulting in aggressive and violent behavior outbursts." He refers to the ability of his sub-

jects to "alienate teachers and workers by their hostility and aggressiveness." These could easily be translated into the symptoms of brain dysfunction already described. The question arises as to what treatment would have been most immediately helpful since none is indicated by Berman.

A case study reported by Barcai and Rabkin[1] on hyperactivity as a precursor of delinquency, has a few suggestions. They describe a twenty year old girl with a background of maternal rejection, placement in various institutions, and ultimte delinquency. Even as an infant she was described as difficult, hyperactive, and later as "unable to postpone gratification." She did not or could not learn. She was quarrelsome. She threatened a teacher with a knife. In a school for delinquents she started a fire and caused injuries to a friend. Finally, however, she requested and received psychiatric help. Givendextroamphetamine despite hesitation in view of her age and the danger of addiction, she responded favorably. She reported feeling "more subdued and thoughtful." She also demonstrated "improved thinking abilities and increased concentration...(and) has started to learn to read and write." Evidence is cited from other studies concerning the percentage of diagnosed hyperactive children, apparently untreated, who developed delinquent patterns of behavior. The percentage is 20% (Menkes, Rowe, and Menkes[13]) and 25% (Mendelson, Johnson and Stewart[14]). The authors' comment is restrained:

> ...drugs alone are not the whole answer... Remedial educational programs and family therapeutic intervention must also be utilized. But alertness to the hyperkinetic syndrome of childhood, and its early diagnosis and treatment, can help to prevent these children from embarking on a later career of deviancy and pathology.

Mann and Greenspan, writing two years earlier than Barcai and Rabkin, saw the possibility that:

> ...adults who have had minimal brain dysfunction as children constitute a distinct diagnostic entity, adult brain dysfunction (ABD) which may exist alone or with a variety of other psychiatric syndromes. Patients with ABD share a basic impairment in personality structures, etc. However, with medication...remarkable improvement...may occur, leading to changes in personality and behavior.[12]

The importance of proper diagnosis of learning disabled, neurologically impaired youth is now seen not only as important to schooling, but to the entire life pattern of the individual with intervention by medication helpful, fortunately, at all ages. This is a new stage in the development of the concept of learning disabilities or neurological dysfunction in children. As such, it requires more than cursory scrutiny. Its sociological implications are beyond the scope of this paper, but will, if substantiated, require legislative and organizational action.

Barcai and Rabkin's conclusions have been operational in a small, private urban school for the past eight years. Since the establishment of the school there have been two distinct developmental periods. In the first period, which lasted six years, there were four factors which were consistently maintained as the focus of the program under the guidance of the school director. These were:

1. Medication prescribed and supervised by a physician as a primary intervention for behavioral symptoms.

2. An individual prescriptive educational program.

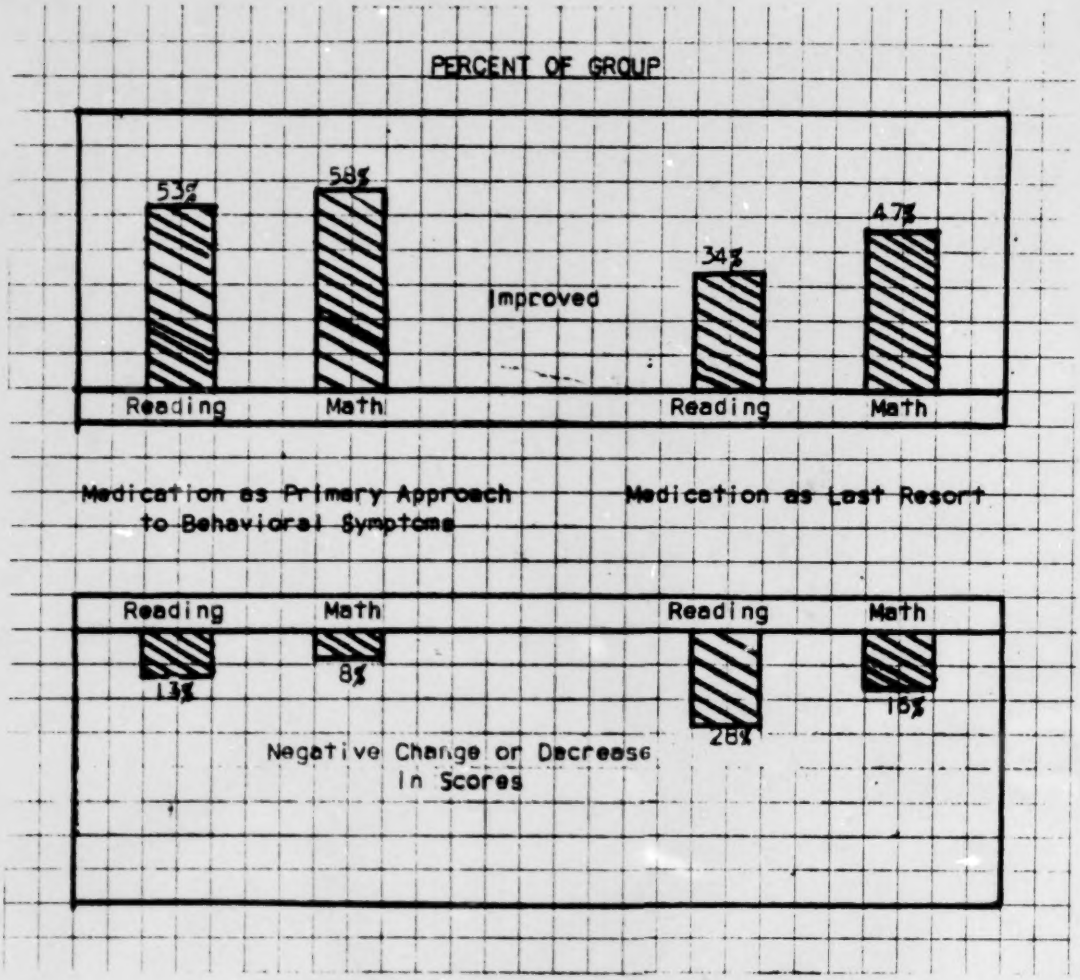
3. Small class size (12 on an average with a teacher and an assistant).

4. Close parent-school contact.

The leadership was the only consistent factor. The school was otherwise subject to considerable change in the form of rapid growth, an influx of new staff members, frequent inconsistencies in staff reactions to provocative student behavior, and so on. The number of students varied in the direction of a steady increase from approximately twenty students at the outset to sixty-five at the midpoint, to one hundred and ten at the conclusion.

In the following two years, the second period in the development of the school, medication was deemphasized, becoming a choice of last resort in favor of therapy and case work. The school's population and staff had stabilized. The number of medicated children had declined from a minimum of 75% to an average 55%. In some classrooms its use had almost vanished. An extensive social work program was in place, and behavior modification programs in most classrooms were also in place. In this period, however, while no delinquent acts were reported outside of school, there occurred the first cases of delinquency on the premises of of the school. These cases included arson, vandalism, and a threat

against the life of a staff member. Also, there was a sudden sharp drop in average attendance from 90% to 70%. Achievement declined as shown in the attached graph, by almost a third.



Since this was a retrospective study derived largely from the records of many students who had attended the school and then had left, there was insufficient data for further statistical analysis. The trend was unmistakeable, however. When "treated" by medication under psychiatric control, the students as a group seemed to derive greater benefit from the education program and there were no delinquencies on site. In short, "pills" seem to make a difference in the educational and social development of certain high risk children with learning disabilities.

It must be admitted that resistance to medication otherwise known as chemotherapy was occasionally intense not only on the part of parents who feared addiction, but on the part of professionals, even guidance counselors and outside social workers, for more abstruse reasons, among them mind control, as described by Schrag[20] and fear of ultimate health hazards. In some cases the child was withdrawn by the parent. In the case of extreme disorder, where parents refused medication treatment, the child was transferred to another program on the same grounds as would be applied by a physician whose diabetic patient would not accept insulin. It would be improper to continue to be responsible for the patient's well-being where there is no chance of beneficial intervention.

Where parental cooperation was established, success was inspiring. Stephen, not his real name, came to the school at age eight improperly medicated and poorly diagnosed as in need of talk therapy. The trouble was he knew all the talk. He was already clever enough to tell his new teacher, "The psychologist tried all that; don't bother me." He was an arsonist and thief; he had broken into vulnerable automobile glove compartments. He manipulated his parents as if they were puppets. However, after four years on a proper medication-education-parent involvement program, he was able to be taken off the medication and left the school for high school, where he adapted inconspicuously and with no further difficulty.

Darryl was another case. It was necessary to conceal his mother outside his classroom. He was so well-behaved at home that she never believed the things his teachers said, especially since he denied them. Parental disbelief of what their children do in school is common. Once she heard his unbelievable profanity (he was eight years old) and once she heard his contemptuous defiance of every single one of his teacher's instructions, she converted on the spot and became one of the most ardent believers in the value of medication. Darryl is not an angel. He continues to have learning and behavior problems, but they are no longer as extreme and no longer clearly destined to bring him before a judge in short order.

The population, as indicated, was originally diagnosed as "minimally brain injured" children. The diagnosis was made in each case by a physician based not on EEG data, but on observed behavior, such as "soft signs". These included delays in achieving such growth milestones as walking, talking, tying shoe laces, going up and down steps, also data on long and short term memory skills,

on gross motor skills as in hopping and walking a straight line, and on general postural appearance, - the so-called awkward syndrome.

Other elements that played a part, and a highly significant part, were reports from the school about inability to concentrate on learning procedures, inability to complete work, severe deficiencies in learning and chronic negativism with peer conflict. Mental retardation was ruled out in part by appropriate psychological testing. Learning retardation was not taken as evidence of mental retardation. When numerical IQ scores were depressed to near borderline, and occasionally below, consideration was given to the possibility that the low scores were the result of defective attention span and poor concentration, and attention was then focused on the whole child, his general alertness, his ability in athletics, his insight as displayed in conversation, his vocabulary range, and on test scatter. These were all considered significant in distinguishing the retardate from a "B.I." child (Brain Injured).

Most important symptoms, however, in identifying the child as a candidate for placement in this special school were hyperactivity and aggression. A maximum of thoroughness in evaluation was required, since in each case a substantial amount of tax levy money was involved, ultimately, the full tuition cost of the child. Identification was, therefore, in no case, a casual matter.

A follow-up study of children who had been sent to other schools or who had left, was able to reach twenty-two whose average age was 17-2. Two of these were still rated as potentially anti-social but none had been in contact with the courts, even up to four years removed from the school and its special program.

Other relevant research findings:

1. Boys outnumber girls by 8 to 1 in one study and 5 to 1 in another with respect to behavior disorders suggestive as we now know of possible future delinquency (Miller[16]).

2. Longitudinal studies of children who later became sociopathic suggest that they suffer from childhood problems in many ways similar to those of hyperactives. These studies lead to the question of whether the hyperactive child syndrome is a precursor of juvenile delinquency and whether early treatment of the hyperactive child can prevent an anti-social outcome. A specific treatment (medication with a stimulant) has been demonstrated to be effective.

Whether this also prevents subsequent serious delinquent behavior is not yet known. However, since no other treatment has been demonstrated to be effective in reducing anti-social behavior, the use of stimulant medication in treating hyperactive children seems to be a promising area for research into the prevention of juvenile delinquent and adult criminal behavior (Sattenfield and Cantwell[18]).

3. Investigation in Europe also suggests that we have here a new medication for "children" as a likely treatment for what were called "character neuroses" and "behavioral disorders". Called "Dipiperon" it resulted in a reduction in capriciousness, obstinancy, irritability, and restlessness with no side effects and "no adverse effect on the school performance of the children." (Van Renynghi and DeBie[20]). Another report on boys and girls between the ages of 6 and 14 with symptoms of "psychomotoric unrest", "disturbance of behavior", and "disturbed concentration" were treated with what is called "Beclamid". Depending on the period of medication, the improvement was better. "The Beclamid-group could be guided more easily, showed a better sense for cooperation, and turned out to be more accessible to pedagogic methods." Neither a sedative nor other side effects could be seen." (Menz, Tschematter and Rohsbach[15]).

Many factors contributed to the success of the program. We prefer to think that one of the main attributes of this program was that parents were enabled to have access to sufficient information in an objective and usable and timely fashion, that they were able to make judgments and meaningfully intervene in their child's progress, rather than being compelled to submit to a process in which they were virtually the chief culprit, or more tactfully the prevailing attitude was that better parents made better children. Parents in this study were able to observe their children under actual classroom conditions that previously generated so much hostility and saw both the need and benefit for participating in a carefully supervised program of medication-based education.

In conclusion, it may be appropriate only to wonder at a society which tolerates the drug disorders attributable to alcohol for example, the death and devastation attributable to the internal combustion engine, namely the automobile, and yet consistently avoids for almost superstitious reasons a thorough investigation of the value of chemotherapy for high risk children. For these children their salvation as contributing human beings may depend on such a

program to prevent their deterioration into anti-social elements, to diminish the disintegration of the social structure, and to protect the individuals in it.

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